

A taxonomic revision of the genus *Chamaexeros* Benth. (Xanthorrhoeaceae)

By R. H. Kuchel*

Abstract

An account is given of the genus *Chamaexeros* Benth. and of the three species recognized. One new species—*C. macranthera*—is described from the South-West region of Western Australia, where the genus is endemic.

Introduction

An examination of plant specimens collected in the South-West region of Western Australia during September 1964, revealed the presence of a hitherto undescribed species of *Chamaexeros*.

The fact that this new species had, in the past, been confused with *C. fimbriata* (F. Muell.) Benth. was demonstrated by an examination of herbarium specimens of this genus obtained on loan from PERTH, MEL and NSW.

Plant taxonomists in general agree that the genera *Chamaexeros* Benth., *Acanthocarpus* Lehm. and *Lomandra* Labill. belong to a closely related group. This was substantiated by Fahn (1954) in his study of the anatomy of the Xanthorrhoeaceae. He referred in this paper to "the *Lomandra* group" consisting of *Lomandra*, *Acanthocarpus* and *Chamaexeros*.

F. von Mueller (1889) grouped these three genera under the illegitimate generic name of *Xerotes* R. Br. Ewart (1916) was unable to find any satisfactory characters by which to distinguish *Acanthocarpus* from *Chamaexeros* and combined them under the older name *Acanthocarpus* Lehm. This procedure was also followed by Gardner (1930).

Bentham (1878) had, however, formulated a key which can be used to distinguish between the three genera and his treatment, with minor amendments, is followed in the key below. Blackall (1954) also followed Bentham.

Key to the Genera of "the *Lomandra* Group"

- | | |
|---|----------------------------|
| 1. Flowers dioecious; styles short with 3 recurved lobes; filaments much shorter than tepals | Lomandra |
| 1. Flowers bisexual; style subulate, simple; filaments almost as long as tepals | |
| 2. Capsule smooth; leaves in basal tufts, bordered when young by a scarios lacerated margin, to 45 cm long | Chamaexeros |
| 2. Capsule muricate; leaves distributed along branched aerial stems, without a scarios margin, to 4 cm long | Acanthocarpus |

CHAMAEXEROS

Chamaexeros Benth., Fl. Austral. 7: 110 (1878).

Tufted perennials (resembling many *Lomandra* spp.). *Leaves* radical, rigid, the young ones bordered by a scarios lacerated margin. *Inflorescence* a panicle or an umbel-like cluster. *Flowers* bisexual. *Perianth segments* 6, free, subequal, pale yellow, the outer 3 broader and more rigid than the inner. *Stamens* 6, the inner 3 attached to the base of the perianth, the outer 3 hypogynous, equal in length, slightly shorter than the perianth; anthers dorsi-fixed, versatile, introrse. *Ovary* 3-celled, with 1 ovule in each cell. *Capsule* (only known from one specimen) loculicidal, globular, smooth; seeds globular.

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Lectotype species: *C. serra* (Endl.) Benth.

Origin of name: From the Greek *chamai*, on the ground; *xeros*, dry. Probably refers to its size and texture, perhaps chosen to contrast with *Xerotes* under which it had been previously placed.

Distribution: Western Australia: South-West region.

Key to Species

1. Leaves terete; style swollen at base and tapering into the ovary; flowers in a pyramidal panicle 1. *C. fimbriata*
1. Leaves flat; style filiform to the base; ovary obtuse to truncate at the summit
 2. Flowers clustered in an umbel-like head at the end of a short bracteate scape 2. *C. serra*
 2. Flowers in a pyramidal panicle, scape lacking sterile bracts 3. *C. macranthera*

1. *Chamaexeros fimbriata* (F. Muell.) Benth., Fl. Austral.7:111(1878).

Xerotes fimbriata F. Muell., Fragm.8:211(1874); Sec. Syst. Census 200(1889).—*Type:* In Australia occidentale extratropica, J. Drummond 329 (holo: MEL 8384). *Acanthocarpus fimbriatus* (F. Muell.) Ewart, Proc. Roy. Soc. Vic. 28:200(1916); Gardner, Enum. Pl. Austral. Occ. 20 (1930).

A tufted perennial. *Leaves* distichously sheathing at the base of a short stem, terete to slightly flattened distally, erect, often curved, rigid, to 45 cm long and 2 mm diam. bordered when young by a narrow scarious lacerated margin which disappears with age. *Scape* axillary, bearing a loose pyramidal panicle to 30 cm long; lacking sterile bracts below first panicle branches; single small bract at base of branches; two small bracteoles at base of each filiform pedicel; primary panicle branches in whorls of 3–6. *Pedicels* to 1.5 cm long, in whorled clusters of 4–8, terminal or at nodes on panicle branches. *Perianth segments* oblong, obtuse, to 3 mm long. *Anthers* to 0.3 mm when dry. *Style*

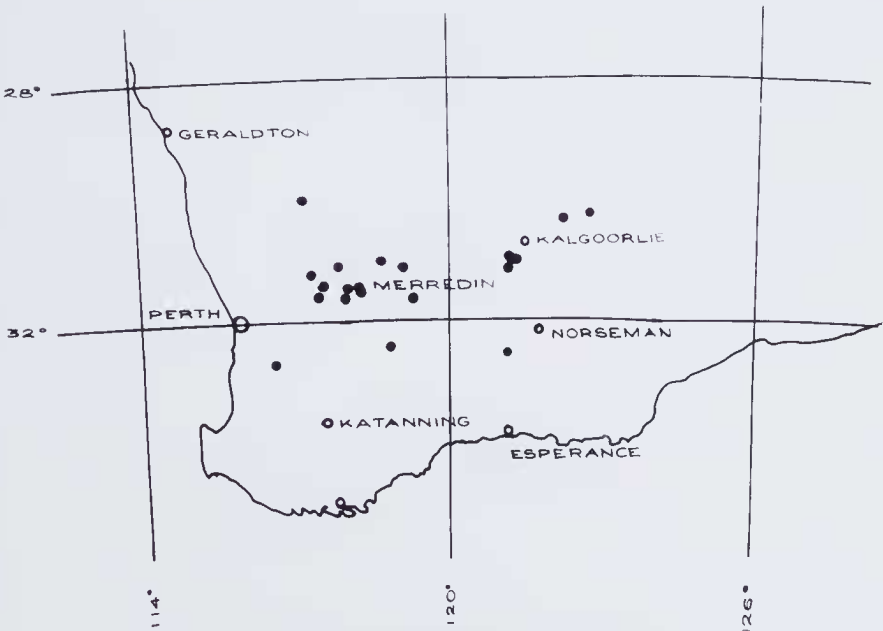


Figure 1. Distribution of *Chamaexeros fimbriata* (F. Muell.) Benth.

about 1.5 mm long, swollen at base and tapering into the ovary. *Capsule* smooth, to 6 mm long, 3-locular, splitting loculicidally, tepals persistent. *Seed* globular, to 3 mm, surface wrinkled when dry.

Distribution: Western Australia: South-West region (Fig. 1).

Without locality, *J. Drummond* 329 (MEL), s.n.(MEL 8385 & 8386); Cunderdin, Aug. 1903, *W. V. Fitzgerald* (NSW 74268, PERTH); Bullabulling, Sept. 1934, *C. A. Gardner* (PERTH); Dalwallinu, Sept. 1947, *Royce* 2118 (PERTH); between Booraan & Burracoppin, Aug. 1949, *F. Salisbury* (PERTH); 437 km from Perth, Great Eastern Highway, Sept. 1966, *E. M. Scrymgeour* 751 (PERTH); Yorkrakine Rock near Westonia, July 1970, *J. S. Beard* 5962 (PERTH); 21 km N of Kellerberrin, Aug. 1970, *M. I. H. Brooker* 2690 (PERTH); west of Red Kangaroo Hill, Nov. 1891, *R. Helms* (MEL 8378, AD 97012342); 200 km E of Kalgoorlie (camp 59), Sept. 1891, *R. Helms* (MEL 8379, AD 95936387); 535 km from Perth on Great Eastern Highway, July 1967, *A. M. Ashby* 2138 (AD); 80 km W of Daniell, Sept. 1964, *P. Wilson* 3189 (AD); Cowcowing, Aug. 1904, *M. Koch* (MEL 8383); Upper Swan, 1888, *E. Merrill* (MEL 8382); Kellerberrin, Dec. 1903, *F. H. Vachall* (NSW 74269).

2. *Chamaerexos serra* (Endl.)Benth., Fl.Austral.7:110 (1878).

Xerotes serra Endl. in Lehm., Pl.Preiss.2:49(1846); Walp., Ann.Bot.Syst.1:881(1848); F. Muell., Sec.Syst.Census200 (1889).—*Type*: In solo sublimoso-glaresoso districtus York et Hay, 25 Apr. et 8 Nov., *Preiss* 1539 (MEL: specimen on left, lecto; specimen on right, syn.). *Acanthocarpus serra* (Endl.)Ewart, Proc.Roy.Soc.Vic.28:220(1916); Gardner, Enum.Pl.Austral. Occ.20 (1930).

A tufted perennial. *Leaves* distichously sheathing at the base of a short stem, flattened, rigid, often falcate, to 30 cm long and 4 mm broad, bordered when young by a narrow scarious lacerated margin which disappears with age. *Scape* axillary, to 10 cm long, bearing a terminal umbel-like cluster of flowers and bearing sterile bracts with scarious margins along its length; scarious bracteoles conspicuous at base of pedicels. *Pedicels* to 15 mm long, in clusters of up to 12, *Perianth segments* oblong, obtuse to 5 mm long. *Filaments* slightly flattened, pale orange in colour; anthers to 0.5 mm long. *Style* about 3 mm

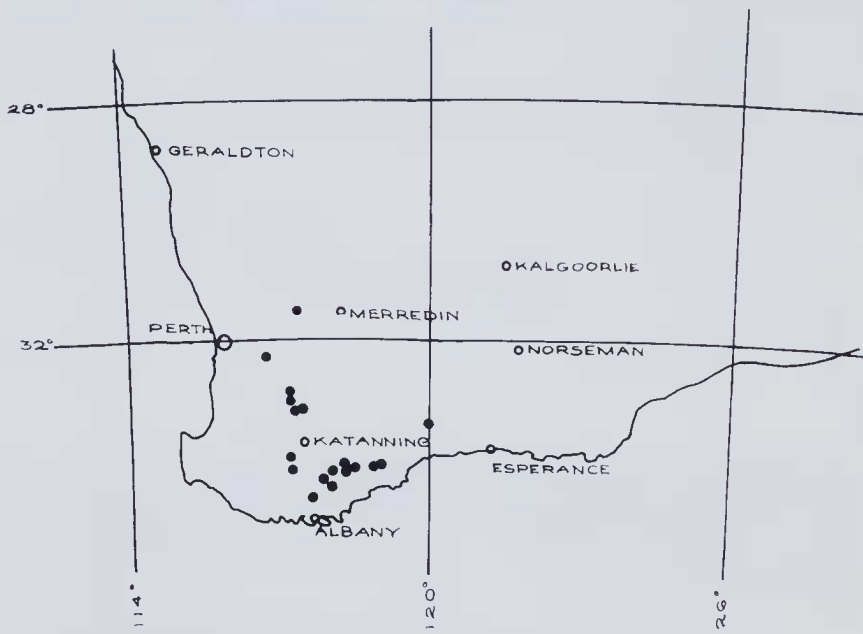


Figure 2. Distribution of *Chamaerexos serra* (Endl.) Benth.

long, filiform to the base; ovary obtuse to truncate at the summit. *Fruit* not known.

Distribution: Western Australia: South-West region (Fig. 2).

Mt. Barker, Oct. 1900, *Goadby* B. 2059 (PERTH); Stirling Range, Oct. 1901, *Diels & Pritzel* 486 (PERTH); valley N of Stirling Range, Oct. 1903, *C. Andrews* (PERTH); 24 km W of Pingrup, Sept. 1961, *R. D. Royce* 6689 (PERTH); near Woogenilup, Oct. 1962, *T. E. H. Aplin* 2115 (PERTH); 62 km W of Ravensthorpe, Oct. 1966, *P. G. Wilson* 5411 (PERTH); Narrogin, 165 km SE of Perth, Aug. 1926, *J. B. Cleland* (AD 97204166); Tammin, 80 km E of Northam, Aug. 1926, *E. H. Ising* (AD 95940013); 25 km E of Cranbrook, Sept. 1964, *R. H. Kuchel* 1919 (AD); districts of York and Hay, April & Nov. 1840, *Preiss* 1539 (MEL); Stirling Range, Oct. 1867, *F. von Mueller* (MEL 8421); Chester Pass, Stirling Range, Oct. 1964, *J. Galbraith* 920 (MEL); Stirling Range, Sept. 1901, *E. Pritzel* 699 (NSW); Welshpool-Kalamunda, Nov. 1909, *J. H. Maiden* (NSW 74270); 32 km ENE of Pingelly, Sept. 1966, *B. G. Briggs* 178 (NSW); near Gnowangerup, Oct. 1972, *K. I. Beemish* (NSW 127665).

3. *Chamaexeros macranthera* Kuchel sp.nov. (Fig. 3).

Herba perennis caespitosa. *Folia* disticha plana rigidaque, juveniles marginibus scariosis et laceratis. *Scapus* filiformis, cum panícula pyramidata usque ad 30 cm longa. *Pedicelli* in verticillos trium vel quattuor dispositi, terminales vel in modis in ranis panicularum. *Tepala* usque ad 4·5 mm long. *Filamenta* paulo planata. *Antherae* ovatae, versatiles, dorsifixae, in sicco usque ad 0·7 mm longae. *Stylis* ca. 2·5 mm longus, ad basin filiformis. *Ovarium* truncatum.

Type: 25 km west of Coolgardie, 23.IX.1964, *R. H. Kuchel* 2154 (holo: AD).

A tufted perennial. *Leaves* distichously sheathing at the base of a short stem, flattened, erect, rigid, sometimes falcate, to 30 cm long and 3 mm broad, bordered when young by a narrow scarious lacerated margin which disappears with age. *Scape* filiform, axillary, bearing a loose pyramidal panicle to 30 cm long, lacking sterile bracts below first panicle branches; single small bract at base of peduncle branches; two small bracteoles at base of the filiform pedicel; primary panicle branches in whorls of 2-4, filiform, slightly erect, distant on rachis. *Pedicels* to 1 cm long, in whorled clusters of 2-4, terminal or at nodes on the panicle branches. *Perianth segments* oblong, obtuse, to 4·5 cm long. *Filaments* slightly flattened and pale orange in colour; anthers ovate, to 0·7 mm long when dry. *Style* about 2·55 mm long, filiform to the base; ovary obtuse to truncate at the summit. *Fruit* not known.

Distribution: Western Australia: South-West region (Fig. 4).

Gibraltar, near Bullabulling, Aug. 1961, *A. S. George* 2691 (PERTH); Bullabulling, W of Coolgardie, Sept. 1934, *C. A. Gardner* (PERTH); road to Beverley, 100 km E of Perth, Aug. 1938, *W. E. Blackall* (PERTH); Wubin, Aug. 1963, *J. S. Beard* 2623 (PERTH); 13·5 km S of Paynes Find on Great Northern Highway, Oct. 1973, *I. B. Armitage* 424 (PERTH); 25 km W of Coolgardie, Sept. 1964, *R. H. Kuchel* 2154 (AD); 3 km SE of Pemberton, Oct. 1967, *R. & R. Belcher* 214 (MEL, AD).

Discussion

The new species, *Chamaexeros macranthera* has, in the past, been confused with *C. fimbriata*. The inflorescence is a panicle in both species, but a transverse section of a leaf of the former species is round and in the latter is definitely flattened, being three times as broad as it is thick.

There are also floral differences, the most obvious being that the anthers of the new species are larger than *C. fimbriata*.

Apart from the vegetative and floral characters which can be used to separate this species from *C. fimbriata*, with which it has previously been confused, it is possible to separate them on anatomical characters of their leaves.

A transverse section of a leaf, taken about half-way along its length, shows the following distinguishing features.

Herb. AD 96501073



TYPE

Chamaexeros macranthera Kubel

in Kubel 206

STATE HERBARIUM OF SOUTH AUSTRALIA
ADELAIDE

Chamaexeros macranthera sp. n.
Western Australia, Eastern Division,
Coolgardie Goldfield,
about 25 km west of Coolgardie,
130° 50' S 121° 41' E

W. L. F. I. I. S.

2151

Leg. H. R. Kubel

Collector's No. 154
Date 25.11.1964

Figure 3. *Chamaexeros macranthera* sp. nov. Holotype.